

We claim:

1. A process for making an acrylic polyol, said process being performed essentially in the absence of styrene and in the absence of methyl acrylate and methyl methacrylate, and comprising:

- (a) charging a reactor with an allylic alcohol, 0-75% of the total amount to be used of a C_2 - C_{20} alkyl or aryl acrylate or methacrylate monomer and 0-100% of the total amount to be used of a free-radical initiator;
- (b) heating the reactor contents to a temperature within the range of 100-250°C; and
- (c) gradually adding to the reactor the remaining acrylic monomer and initiator.

2. The process of claim 1 giving a total monomer conversion greater than about 90%.

3. The process of claim 1 giving a total monomer conversion greater than about 95%.

4. The process of claim 1 giving a total monomer conversion greater than about 99%.

5. The process of claim 1 wherein the acrylic polyol has a number average molecular weight less than about 5,000 and a weight average molecular weight less than about 10,000.

6. The process of claim 1 wherein the acrylic polyol has a number average molecular weight less than about 2,500 and a weight average molecular weight less than about 5,000.

7. The process of claim 1 wherein the acrylic polyol has a molecular weight distribution less than about 3.5.

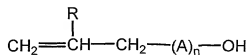
8. The process of claim 1 wherein the acrylic polyol has a molecular weight distribution less than about 2.5.

9. The process of claim 1 wherein the liquid acrylic polyol has a hydroxyl number within the range of about 20 mg KOH/g to about 250 mg KOH/g.

10. The process of claim 1 wherein the acrylic monomer is a C₂-C₂₀ alkyl acrylate or methacrylate.

11. The process of claim 1 wherein the acrylic monomer is selected from the group consisting of 2-ethylhexyl acrylate, n-butyl acrylate, 2-ethylhexyl methacrylate, hexyl methacrylate, n-butyl methacrylate, isobornyl methacrylate, and mixtures thereof.

12. The process of claim 1 wherein the allylic alcohol has the general structure:



in which R is hydrogen, a C₁-C₁₀ alkyl, or a C₆-C₁₂ aryl group; A is an oxyalkylene group; and n, which is an average number of oxyalkylene groups, is within the range of 0 to about 15.

13. The process of claim 12 wherein n is within the range of about 1 to about 5.

14. The process of claim 12 wherein n is within the range of about 1 to about 2.

15. The process of claim 12 wherein the allylic alcohol is allyl alcohol monopropoxylate.

16. A process for making an acrylic polyol, said process being performed at reflux temperature under atmospheric pressure, essentially in the absence of styrene and in the absence of methyl acrylate and methyl methacrylate, and comprising:

- (a) initially charging a reactor with an allylic alcohol, 0-75% of the total amount to be used of C₂ to C₂₀ alkyl or aryl acrylate or methacrylate and 0-100% of the total amount to be used of a free-radical initiator;
- (b) heating the reactor contents to reflux ; and
- (c) gradually adding to the reactor the remaining acrylic monomer and initiator;

wherein the acrylic monomer has a boiling point the same as or higher than the allylic alcohol.

17. The process of claim **16** giving a total monomer conversion greater than about 90%.

18. The process of claim **17** wherein the free-radical initiator contains less than 30 wt % of water.